CLAIM AMENDMENTS

Please amend the claims as follows:

CLAIMS

1.   A ~~Method~~ method for quantifying the performance of a component, comprising: a component ~~(1)~~ adapted to function as a node in a communications network, where the service time delay (S) for an information unit (A) with a certain payload (P) is known as the time difference between the time of departure (t_d) of said information unit (A) and the time of arrival (t_a) of said information unit (A), where a first service time (S_1) is known for a first information unit (A_1) with a first payload (P_1), a second service time (S_2) is known for a second information unit (A_2) with a second payload (P_2), and so on to a last information unit (A_n) with a last payload (P_n) in a stream of payloads, and where the incremental step (IS) of payload between said first, second and following information units (A_1, A_2, .., A_n) is predefined, ~~characterized in, that~~ wherein said component is represented by a virtual distance (x) according to the following formula:

$$x = v_1 \cdot S_1 = v_2 \cdot S_2 = \cdots = v_i \cdot S_i = v_{i+1} \cdot S_{i+1} = \cdots = v_n \cdot S_n$$

_____~~that~~wherein the virtual distance x is a constant distance for a given component, that v_i corresponds to a virtual speed with which an information unit (Ai) with a specific payload P_i travels;

_____~~; that~~wherein S_i corresponds to the time taken to travel said distance x with the speed v_i, S_i being the service time for an information unit A_i with payload P_i;

_____~~that~~wherein the speed v_i is represented by:

$$v_i = \left[\frac{S_{i+1}}{S_i} - 1 \right] \cdot IS^{-1}$$

_____~~that~~wherein the constant distance x thus is represented by:

4

$$x = \frac{S_{i+1} - S_i}{IS}, \text{and,}$$

wherein ~~that~~ the virtual distance x is a representation of a metric that relates to intrinsic properties of said component, allowing said quantification of said component.

2. The ~~Method~~method according to Claim 1, ~~characterised in, that~~wherein said component ~~(1)~~ is represented by two distances~~,~~:

a first distance $_ax$ ~~represents~~representing said component in a first sense, meaning that as said information units arrive to said component ~~(1)~~through a first interface ~~(1a)~~and departs from said component ~~(1)~~through a second interface ~~(1b)~~, such as uplink communication, and~~,~~;

- ~~that~~ a second distance $_bx$ ~~represents~~representing said component ~~(1)~~ in a second sense, meaning that said information units arrive to said component ~~(1)~~through said second interface ~~(1b)~~and departs from said component ~~(1)~~through said first interface ~~(1a)~~, such as downlink communication.

3. The ~~Method~~method according to Claim 1 ~~or 2~~, ~~characterised in, that~~wherein if said component ~~(1)~~has a number of usable interfaces ~~(1a, 1b, ..., 1n)~~, then said component is represented by two distances, meaning two senses, for every possible combination of interfaces.

4. The ~~Method~~method according to ~~any preceding Claim~~Claim 1, ~~characterised in, that~~wherein said service time (S) is a part of a component's total response time (R), that the response time (R) is a sum of said service time (S) and a waiting time (W), ~~that~~ whereby $R_i = t_{di} - t_{ai}$, ~~that~~whereby if $t_{ai} \geq t_{d(i-1)}$ then $W_i = 0$ and $S_i = R_i$, and ~~that~~ whereby if $t_{ai} < t_{d(i-1)}$ then $W_i = t_{d(i-1)} - t_{ai}$ and $S_i = t_{di} - t_{d(i-1)}$.

5. The ~~Method~~method according to ~~any preceding Claim~~Claim 1, ~~characterised in, that~~wherein ~~said~~ service time (S) comprises the time to process, to check for errors and to transmit an information unit (A), and that the time to process an information unit

5

(A) may include any management time and other delays relating to network specific details.

6.   The ~~Method~~method according to ~~any preceding Claim~~Claim 1, ~~characterised in, that~~wherein statistical methods are used to obtain values for service times (S), and thus virtual speed (v), representing information units (A) with different payloads (P), and virtual distance (x) representing said ~~component (1)~~, with sufficient accuracy and certainty.

7.   A ~~System~~system for quantifying the performance of a component ~~(1)~~ adapted to function as a node in a communications network, said system comprising: ~~a first, second and third computing unit,~~

_____a ~~where said~~ first computing unit ~~(2) is~~ connected to said component ~~(1)~~ by means of a first interface (1a);

_____a ~~where said~~ second computing unit ~~(3) is~~ connected to said component ~~(1)~~ by means of a second interface ~~(1b)~~;

_____where said first computing unit ~~(2) is~~ adapted to send an information unit (A) with a certain payload (P) to said second computing unit ~~(3)~~ through said component ~~(1)~~;

_____a ~~where said~~ third computing unit ~~(4) is~~ adapted to passively calculate the service time delay (S) for said information unit (A) by using the information obtained by measuring the time difference between the time of departure (t_d) of said information unit (A) from said component ~~(1)~~ and the time of arrival (t_a) of said information unit (A) to said ~~component (1)~~;

_____~~where~~said first computing unit ~~(2)~~ is adapted to send a stream of information units where the incremental step (IS) of payload between a first, second and following information units (A_1, A_2, ..., A_n) is predefined;

_____~~where~~said third computing unit ~~(4) is~~ adapted to measure a first service time (S_1) for a first information unit (A_1) with a first payload (P_1), a second service time (S_2) for a second information unit (A_2) with a second payload (P_2), and so on to a last information unit (A_n) with a last payload (P_n) in said stream of information units, ~~characterized in, that~~wherein said component ~~(1)~~ is represented by a virtual distance x,

6

that said third computing unit (4) is adapted to calculate said virtual distance according to the following formula:

$$x = v_1 \cdot S_1 = v_2 \cdot S_2 = \cdots = v_i \cdot S_i = v_{i+1} \cdot S_{i+1} = \cdots = v_n \cdot S_n;$$

_____that said virtual distance x is a constant distance for a given component (1), that v_i corresponds to a virtual speed with which an information unit (A$_i$) with a specific payload (P$_i$) travels, that S$_i$ corresponds to the time taken to travel said distance x with the speed v_i, S$_i$ being the service time for an information unit A$_i$ with payload P$_i$;

_____that the speed v_i is represented by:

$$v_i = \left[\frac{S_{i+1}}{S_i} - 1 \right] \cdot IS^{-1}$$

_____that the constant distance x thus is represented by:

$$x = \frac{S_{i+1} - S_i}{IS}, \text{ and}$$

_____and that said third computing unit (4) is adapted to present the virtual distance x as a representation of a metric that relates to intrinsic properties of said component (1), thus providing said quantification of said component (1).

8.   The System system according to Claim 7, characterised in, that wherein said third computing unit (4) is adapted to calculate two distances representing said component (1):

_____, that a first distance $_a$x represents said component (1) in a first sense, where said first computing unit (2) is adapted to send information units to said second computing unit (3) through said component (1), such as uplink communication; and

7

that a second distance $_bx$ represents said component (1) in a second sense, where said second computing (3) unit is adapted to send packets to said first computing (2) unit through said component (1), such as downlink communication.
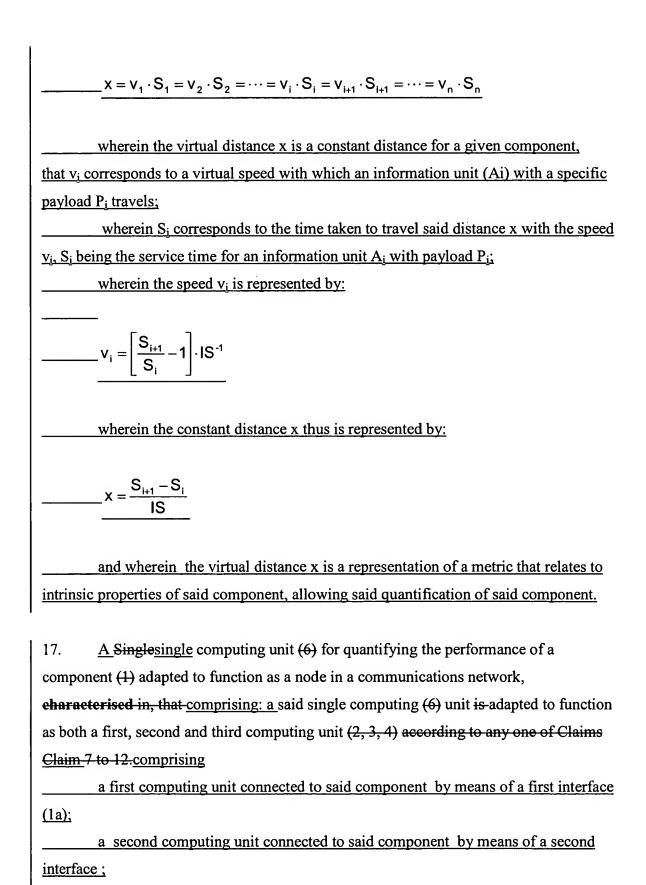
9. The ~~System~~system according to Claim 7 ~~or 8, characterised in, that,~~wherein if said component (1) has a number of usable interfaces ~~(1a, 1b, ..., 1n)~~, then said first and second computing units ~~(2, 3)~~ are adapted to communicate with each other through said component ~~(1)~~through every possible combination of interfaces, and that said third computing unit (4) is adapted to calculate and present two distances representing said component (1), meaning two senses, for every possible combination of interfaces.

10. The ~~System~~system according to Claim 7, ~~8 or 9, characterised in, that~~wherein said third computing unit (4) is adapted to extract said service time (S) from the total response time of said component, where the response time (R) is a sum of said service time (S) and a waiting time (W) of said component, that:

_____ $R_i = t_{di} - t_{ai}$, that if $t_{ai} \geq t_{d(i-1)}$ then $W_i = 0$ and $S_i = R_i$, and that if

_____ $-t_{ai} < t_{d(i-1)}$ then $W_i = t_{d(i-1)} - t_{ai}$ and $S_i = t_{di} - t_{d(i-1)}$.

11. The ~~System~~system according to any one of ~~Claims~~Claim 7, ~~8, 9 or 10,~~ ~~characterised in, that~~wherein said service time (S) comprises the time to process, to check for errors and to transmit an information unit (A), and that the time to process an information unit (A) may include any management time and other delays relating to network specific details.

12. The ~~System~~ system according to ~~any one~~of ~~Claims~~Claim 7, ~~8, 9, 10 or 11,~~ ~~characterised in, that~~wherein said first and second computing units ~~(2, 3)~~ are adapted to send and receive several streams of information units through said component (1), each stream being sufficiently long to represent information units (A) with different payloads (P), in order to provide said third computing unit (4) with measurement data required to

8

perform statistical methods to obtain values for service times ~~(S)~~, virtual speed ~~(v)~~ and virtual distance ~~(x)~~ with sufficient accuracy and certainty.

13.   A first computer program product, ~~characterised in, that said first computer program product comprises~~ comprising: a first computer program code, which, when executed by a computing unit, makes said computing unit work as a first computing unit according to ~~any one of Claims~~ Claim 7 ~~to 12~~.

14.   A second computer program product, ~~characterised in, that said second computer program product comprises~~ comprising: a second computer program code, which, when executed by a computing unit, makes said computing unit work as a second computing unit according to ~~any one of Claims~~ Claim 7 ~~to 12~~.

15.   A third computer program product, ~~characterised in, that said third computer program product comprises~~ comprising: a third computer program code, which, when executed by a computing unit, makes said computing unit work as a third computing unit according to ~~any one of Claims~~ Claim 7 ~~to 12~~.

16.   A fourth computer program product, ~~characterised in, that said fourth computer program product comprises~~ comprising: a fourth computer program code, which, when executed by a computing unit, makes said computing unit perform ~~the~~ a method ~~according to any one of Claims Claim 1 to 6.~~ comprising, a component adapted to function as a node in a communications network, where the service time delay (S) for an information unit (A) with a certain payload (P) is known as the time difference between the time of departure (t_d) of said information unit (A) and the time of arrival (t_a) of said information unit (A), where a first service time (S_1) is known for a first information unit (A_1) with a first payload (P_1), a second service time (S_2) is known for a second information unit (A_2) with a second payload (P_2), and so on to a last information unit (A_n) with a last payload (P_n) in a stream of payloads, and where the incremental step (IS) of payload between said first, second and following information units $(A_1, A_2, .., A_n)$ is predefined, wherein said component is represented by a virtual distance (x) according to the following formula:

9

$$x = v_1 \cdot S_1 = v_2 \cdot S_2 = \cdots = v_i \cdot S_i = v_{i+1} \cdot S_{i+1} = \cdots = v_n \cdot S_n$$

wherein the virtual distance x is a constant distance for a given component, that v_i corresponds to a virtual speed with which an information unit (Ai) with a specific payload P_i travels;

wherein S_i corresponds to the time taken to travel said distance x with the speed v_i, S_i being the service time for an information unit A_i with payload P_i;

wherein the speed v_i is represented by:

$$v_i = \left[\frac{S_{i+1}}{S_i} - 1 \right] \cdot IS^{-1}$$

wherein the constant distance x thus is represented by:

$$x = \frac{S_{i+1} - S_i}{IS}$$

and wherein the virtual distance x is a representation of a metric that relates to intrinsic properties of said component, allowing said quantification of said component.

17.   A ~~Single~~single computing unit ~~(6)~~ for quantifying the performance of a component ~~(1)~~ adapted to function as a node in a communications network, ~~characterised in, that~~ comprising: a said single computing ~~(6)~~ unit ~~is~~ adapted to function as both a first, second and third computing unit ~~(2, 3, 4)~~ ~~according to any one of Claims Claim 7 to 12.~~ comprising

a first computing unit connected to said component by means of a first interface (1a);

a second computing unit connected to said component by means of a second interface ;

10

where said first computing unit adapted to send an information unit (A) with a certain payload (P) to said second computing unit through said component ;

a third computing unit adapted to passively calculate the service time delay (S) for said information unit (A) by using the information obtained by measuring the time difference between the time of departure (t_d) of said information unit (A) from said component and the time of arrival (t_a) of said information unit (A) to said component;

said first computing unit adapted to send a stream of information units where the incremental step (IS) of payload between a first, second and following information units (A_1, A_2, ..., A_n) is predefined;

said third computing unit adapted to measure a first service time (S_1) for a first information unit (A_1) with a first payload (P_1), a second service time (S_2) for a second information unit (A_2) with a second payload (P_2), and so on to a last information unit (A_n) with a last payload (P_n) in said stream of information units, wherein said component is represented by a virtual distance x, said third computing unit adapted to calculate said virtual distance according to the following formula:

$$x = v_1 \cdot S_1 = v_2 \cdot S_2 = \cdots = v_i \cdot S_i = v_{i+1} \cdot S_{i+1} = \cdots = v_n \cdot S_n;$$

said virtual distance x is a constant distance for a given component , that v_i corresponds to a virtual speed with which an information unit (A_i) with a specific payload (P_i) travels, that S_i corresponds to the time taken to travel said distance x with the speed v_i, S_i being the service time for an information unit A_i with payload P_i;

the speed v_i is represented by:

$$v_i = \left[\frac{S_{i+1}}{S_i} - 1\right] \cdot IS^{-1}$$

the constant distance x thus is represented by:

$$x = \frac{S_{i+1} - S_i}{IS}, \text{ and}$$

11

said third computing unit adapted to present the virtual distance x as a representation of a metric that relates to intrinsic properties of said component, thus providing said quantification of said component.

18.   The Ssingle computing unit (6) according to Claim 17, ~~characterised in, that~~wherein said single computing unit (6) comprises ~~computer program code according to Claim 16~~ a computer program code, which, when executed by a computing unit, makes said computing unit perform a method comprising, a component adapted to function as a node in a communications network, where the service time delay (S) for an information unit (A) with a certain payload (P) is known as the time difference between the time of departure (t_d) of said information unit (A) and the time of arrival (t_a) of said information unit (A), where a first service time (S_1) is known for a first information unit (A_1) with a first payload (P_1), a second service time (S_2) is known for a second information unit (A_2) with a second payload (P_2), and so on to a last information unit (A_n) with a last payload (P_n) in a stream of payloads, and where the incremental step (IS) of payload between said first, second and following information units (A_1, A_2, .., A_n) is predefined, wherein said component is represented by a virtual distance (x) according to the following formula:

$$x = v_1 \cdot S_1 = v_2 \cdot S_2 = \cdots = v_i \cdot S_i = v_{i+1} \cdot S_{i+1} = \cdots = v_n \cdot S_n$$

wherein the virtual distance x is a constant distance for a given component, that v_i corresponds to a virtual speed with which an information unit (Ai) with a specific payload P_i travels;

wherein S_i corresponds to the time taken to travel said distance x with the speed v_i, S_i being the service time for an information unit A_i with payload P_i;

wherein the speed v_i is represented by:

$$v_i = \left[\frac{S_{i+1}}{S_i} - 1 \right] \cdot IS^{-1}$$

12

wherein the constant distance x thus is represented by:

$$x = \frac{S_{i+1} - S_i}{IS}$$

and wherein the virtual distance x is a representation of a metric that relates to intrinsic properties of said component, allowing said quantification of said component.

19.   The ~~Single~~single computing unit ~~(6)~~ according to Claim 17, ~~characterised in, that~~ wherein said single computing ~~(6)~~ unit comprises computer program code ~~according to Claims 13, 14 and 15.~~ comprising, a said single computing unit adapted to function as both a first, second and third computing unit comprising

      a first computing unit connected to said component by means of a first interface (1a);

      a second computing unit connected to said component by means of a second interface ;

      where said first computing unit adapted to send an information unit (A) with a certain payload (P) to said second computing unit through said component ;

      a third computing unit adapted to passively calculate the service time delay (S) for said information unit (A) by using the information obtained by measuring the time difference between the time of departure (t_d) of said information unit (A) from said component and the time of arrival (t_a) of said information unit (A) to said component;

      said first computing unit adapted to send a stream of information units where the incremental step (IS) of payload between a first, second and following information units (A_1, A_2, ..., A_n) is predefined;

      said third computing unit adapted to measure a first service time (S_1) for a first information unit (A_1) with a first payload (P_1), a second service time (S_2) for a second information unit (A_2) with a second payload (P_2), and so on to a last information unit (A_n) with a last payload (P_n) in said stream of information units, wherein said component is

represented by a virtual distance x, said third computing unit adapted to calculate said virtual distance according to the following formula:

$$x = v_1 \cdot S_1 = v_2 \cdot S_2 = \cdots = v_i \cdot S_i = v_{i+1} \cdot S_{i+1} = \cdots = v_n \cdot S_n;$$

said virtual distance x is a constant distance for a given component , that v_i corresponds to a virtual speed with which an information unit (A_i) with a specific payload (P_i) travels, that S_i corresponds to the time taken to travel said distance x with the speed v_i, S_i being the service time for an information unit A_i with payload P_i;

the speed v_i is represented by:

$$v_i = \left[\frac{S_{i+1}}{S_i} - 1 \right] \cdot IS^{-1}$$

the constant distance x thus is represented by:

$$x = \frac{S_{i+1} - S_i}{IS}, \text{ and}$$

said third computing unit adapted to present the virtual distance x as a representation of a metric that relates to intrinsic properties of said component, thus providing said quantification of said component.